

Application No. 10/628,677
January 31, 2007
Amendment responsive to Office Action of November 1, 2006

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Remarks

Paragraph 35 of the specification is objected to for certain informalities. Pending claims 1 and 4 stand rejected by the Examiner under 35 U.S.C. §103(a) as being unpatentable over *Ingram* (US 6,509,836 B1) in view of NPL (potentials, IEEE Volume 18, Issue 4, Oct-Nov 1999, pages 29,33) and *Vega et al.* (US 6,147,605). Pending claims 2, 3, 5, and 6 stand rejected by the Examiner under 35 U.S.C. §103(a) as being unpatentable over *Ingram* (US 6,509,836 B1) in view of NPL (potentials, IEEE Volume 18, Issue 4, Oct-Nov 1999, pages 29,33) and *Vega et al.* (US 6,147,605) and in further view of *Montgomery* (US 2003/0232600 A1). Pending claims 7 and 8 stand rejected by the Examiner under 35 U.S.C. §103(a) as being unpatentable over *Ingram* (US 6,509,836 B1) in view of NPL (potentials, IEEE Volume 18, Issue 4, Oct-Nov 1999, pages 29,33) and *Vega et al.* (US 6,147,605) and in further view of *Lewinter* (US 4,499,594).

In response to the Office action, Applicant has amended paragraph 35 to address the informalities therein. Applicant has amended the base claims 1, 4, 7, and 8 and has canceled claims 2 and 5.

Claim Rejections Under 35 U.S.C. §103

Requirements for *Prima Facie* Obviousness

The obligation of the Examiner to go forward and produce reasoning and evidence in support of obviousness under 35 U.S.C. §103 is clearly defined at M.P.E.P. §2142:

The examiner bears the initial burden of factually supporting any *prima*

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facie conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

M.P.E.P. §2143 sets out the three basic criteria that a patent examiner must satisfy to establish a *prima facie* case of obviousness necessary for establishing a rejection to a claim under 35 U.S.C. §103:

1. some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;
2. a reasonable expectation of success; and
3. the teaching or suggestion of all the claim limitations by the prior art reference (or references when combined).

It follows that in the absence of such a *prima facie* showing of obviousness under 35 U.S.C. §103 by the examiner (assuming there are no objections or other grounds for rejection) an Applicant is entitled to grant of a patent. Thus, in order to support an obviousness rejection under 35 U.S.C. §103, the Examiner is obliged to produce evidence compelling a conclusion that each of the three aforementioned basic criteria has been met.

Montgomery

Applicant has amended the independent claims to contain limitations wherein the antenna impedance is adjusted by selectively connecting it to power splitters and matched loads. These amendments are supported by Applicant's Fig. 5 and paragraphs 32-35. Specifically, Applicant discloses "it is preferable that all the codes have approximately the same energy at the receiver." (para 32, last

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sentence).

The strength of a signal reflected by an antenna depends on the antenna impedance. Connecting the antenna to ground or to infinite impedance produces strong reflections. Receivers however are easier to design and work better when the received signals all have similar power levels. The reasons are that strong signals can swamp out sensitive receivers and weak signals can go undetected by insensitive receivers. One very expensive solution is to increase the dynamic range of the receiver. Another, much cheaper solution, is to adjust the received signals such that they are all received with similar strength. Multiple transmitters, such as cell phones contacting a cell tower, can adjust their transmission strength. Reflected signal systems, however, don't have that luxury. That is the heart of Applicant's invention. The power of reflected signals can be adjusted by adjusting the reflector's (here an antenna) impedance.

Montgomery's PIM diplexer circuit is not analogous to Applicants power splitter because the diplexer is a filter circuit for removing unwanted intermodulation products at the location of a receiver/transmitter pair whereas Applicant's circuit having a power splitter and matched load is an impedance adjustor for varying the return strength of a reflected signal.

Examiner refers to *Montgomery* paragraph 113 lines 4-10 stating:

In general, it is believed that a properly matched diplexer PIM control circuit, such as the circuit illustrated in FIG. 5, may be designed to ***effectively absorb a PIM subject frequency*** to acceptable design standards by ***directing that frequency component through the shunt leg***.

Observation of FIG 5 reveals that, indeed, *Montgomery* is using a classic 2 port filter model, as taught in undergraduate analog electronics courses, as a

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frequency filter. There is, however, no apparent switched connection to an antenna.

Montgomery discloses in the first sentence of paragraph 12: "*The present invention involves a solution to the general problem of removing one or more Intermodulation products or signals.*" In other words, *Montgomery* is addressing a different part of the system. Intermodulation products occur in a receiver when the receiver gets "mixed signals". Prime sources of those mixed signals are strong signals from a nearby transmitter, strong reflections from local topography, and demodulation signals within the receiver itself. Once the sources of intermodulation signals are minimized, the effects of intermodulation signals can be minimized by filtering them out – which is what *Montgomery* suggests.

Applicant uses a power splitter for a very specific reason. Power splitters are designed to divide the power of an input signal into one or more output signals regardless of frequency content. They do not selectively shunt one frequency range to one output and another frequency range to another output. That is why power splitters have a frequency range specifications. Any signal within the range specification will be split the same. A filter, which is what *Montgomery* uses, selectively removes frequencies from a signal. As such, Applicant's power splitter with matched load circuit is ideal for varying antenna impedance because it equally affects all the frequencies within the range specification. *Montgomery's* diplexer is ideal for removing intermodulation frequencies.

To summarize:

- 1) *Montgomery's* diplexer is not analogous to Applicant's power splitter and therefore neither taught nor suggested;

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2) *Montgomery's* invention, which is used to filter frequencies at a receiver, does not motivate anyone to vary a reflector's impedance;

3) Combining *Montgomery* with the other references will not lead to success because *Montgomery's* diplexor, a frequency filter, is unsuitable for wide band variation of reflector impedance.

Conclusion

In view of the foregoing remarks, the Applicant submits that Claims 1, 3, 4, 6, 7, and 8 are patentably distinct over the references and are in allowable form. Accordingly, the Applicant earnestly solicits the favorable consideration of the application, and respectfully requests that it be passed to issue in its present condition.

Should the Examiner discern any remaining impediment to the prompt allowance of the aforementioned claims that might be resolved or overcome with the aid a telephone conference, he is cordially invited to call the undersigned at the telephone number set out below.

Respectfully submitted,



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